

BEFORE THE FEDERAL COMMUNICATIONS COMMISSION  
PUBLIC SAFETY AND HOMELAND SECURITY BUREAU  
WASHINGTON, D.C. 20554

**PETITION FOR WAIVER AND EXPEDITED ACTION  
REQUESTED**

**In the Matter of:**

Effect of FCC Rule 90.535d (2)(3) “*Modulation and spectrum efficiency requirements*” on the future efficiency, budgetary impact and sustained viability of the Regional Wireless Cooperative (RWC).

The Regional Wireless Cooperative (RWC and 700 MHz Region 3 Regional Planning Committee (Region 3 RPC), representing the State of Arizona; submit this Petition for Expedited Review and Action for Rulemaking to the Commission’s Rules for the mandatory transition deadline to be waived or modified from December 31, 2016 to a date of December 31, 2020; or a yet to be determined date based upon certain criteria set forth by the Commission.

**I. BACKGROUND**

The RWC is diligently working with its regional public safety partners to promote interoperability between various public safety radio communications systems, to develop a system-of-systems approach to link systems together for improved interoperability and direct operability across a wide geographic area. This geographic footprint largely encompasses the Phoenix metropolitan area with future connectivity to the major population centers of Tucson, Yuma and Flagstaff. An overview of the RWC is provided to frame and highlight the impact of the FCC’s 2017 deadline to narrowband 700 MHz on the RWC and its member agencies.

The RWC is a cooperative body formed under an Intergovernmental Agreement (IGA) whose purpose is to provide seamless, wide-area, operational and interoperational public safety communications through a governance structure founded on the principle of cooperation for the mutual benefit of all subscribers. Participation is open to all local, county, state, tribal and federal entities.

Governance oversight is managed by a Board of Directors consisting of one executive representative from each member. The Board directs the operation, maintenance, planning, design, implementation and financing of the RWC. Membership includes the majority of cities, towns and fire districts in the Phoenix metropolitan area. Current membership, as of January 1, 2012, includes:

City of Avondale	City of Phoenix
Town of Buckeye	City of Peoria
City of Chandler	City of Scottsdale
Daisy Mountain Fire District	Sun City Fire District
City of El Mirage	Sun City West Fire District
City of Glendale	Sun Lakes Fire District
City of Goodyear	City of Surprise
Town of Guadalupe	City of Tempe
City of Maricopa	City of Tolleson

## II. INFRASTRUCTURE

The RWC radio network is a large, Public Safety system based on the Project 25, Phase I Standard. The network is an ASTRO 25™, Integrated Voice and Data, trunked radio system providing coverage over 11,000 square miles of central Arizona. It operates in the 700/800 MHz frequency bands and uses standard Simulcast, IP Simulcast, and individual site trunking. The network consists of seven (7) major simulcast subsystems and ten (10) Intelligent Site Repeaters (ISR's) with over 1000 transmitters and over 200 RF channels.

Over 18,200 member subscribers (radios) are currently supported on the network. Additionally, there are more than 40 non-member city, county, state, tribal and federal agencies on the network with over 14,000 radios that use the network as Interoperability Participants. The system provides seamless, wide area coverage across central Arizona. The RWC is data capable, but at the current time is only used in a data capacity to provide vital encryption services.

Because of the regional nature of the system, participating members have invested in excess of \$150.5 million as well as over \$19.2 million in state and federal grant funds to increase regional use of the system and reduce the cost of membership. Grants have been used to link multiple dispatch centers; add the City of Tempe to the network; increase system capacity to allow greater roaming and interoperability; add several mountaintop sites to be used for very wide-area coverage, emergency backup and wide area interoperability; provide connectivity to the City of Peoria's new system; provide cache radios to be used for emergencies; and an emergency hospital intercommunications network.

The RWC system has been effectively used to provide interoperable communications for numerous special events in the Phoenix metropolitan area. The system is commonly used for coordinating the movements and security of government officials, including the recent presidential visit to the East Valley. The system provides support for the annual Fiesta Bowls, BCS football games, PGA Waste Management Phoenix Open golf tournaments, NASCAR races, and was public safety's primary infrastructure link for the 2008 Super Bowl, 2009 NBA and 2011 MLB All Star games.

The City of Glendale has been selected as the site for the 2015 Super Bowl and will again rely on the RWC for this high security world-wide event. The 2008 Super Bowl, in particular, clearly demonstrated the need for a truly regional radio system and has prompted more discussions between the metropolitan cities, counties and state, on how to effectively use the RWC while minimizing the costs associated with maintaining individual, disparate systems.

### **III. PROBLEM**

As is the case with most governmental entities across the country, public safety agencies are facing significant budgetary challenges due to the declining economy. Reductions in revenue have prompted corresponding consolidations and even reductions in service delivery. Maintaining basic government services as well as radio system infrastructure and subscriber equipment (radios) will be major challenges for RWC members for many years to come.

Furthermore, in a system of this size, a conversion to comply with the FCC's 2017 mandate to narrow band 700 MHz requires several years of planning and coordination. This narrow banding rule requires that a majority of existing system infrastructure and subscriber handheld units are not just converted, but replaced. Even when considered on a system by system basis, the impacts to each system are large, but when the number of interoperability users is also considered, the changes to one system may significantly impact users in many other allied agencies.

For these reasons, the supporting signatories request that the Commission modify the current rules addressing spectrum efficiency as cited above. If the current December 31, 2016 deadline is not extended, it will have a significant negative impact for all members and users of the RWC system.

Our position has five (5) main points for consideration:

1. 700 MHz frequencies are being allocated effectively and used efficiently in Region 3.
2. TDMA standards have not yet been fully ratified and consequently, there is a lack of available products, specifically subscribers, which comply with the standard.
3. Product life-cycles, costs and availability are such that agencies are seriously challenged to maintain their infrastructure and subscribers in sound, up to date working order.
4. Frequency management, including narrow-banding is best managed regionally by the local agencies to best fit the needs of their area.

5. TDMA conversion for systems using a combination 700 MHz and 800 MHz require more changes than just to the 700 MHz frequencies. 800 MHz equipment must be transitioned to 700 MHz in order to provide critical seamless roaming capability.

#### **IV. COMMENTARY**

##### **A. 700 MHz frequencies are being allocated effectively and used efficiently in Region 3.**

The Region 3 RPC has not yet seen enough requests for 700 MHz narrowband channels to require a migration to TDMA 2 channel equivalency to support any outstanding applications for channels. The RWC has made several large deployments on 700 MHz narrowband voice channels in the Phoenix metropolitan area; however region wide deployments are few. No channel contention exists in Region 3 at this time thus the immediate need to begin costly upgrades to TDMA 2 channel equivalency by the December 31, 2016 deadline does not exist. While financial planning for these upgrades has begun within Region 3, the current deadline is simply an unreachable goal for a majority of the public safety agencies within this region at this time. Furthermore, it does not appear to be necessary since we have already constructed unified systems, as was the apparent goal and intent of creating this band for public safety's use in the first place.

##### **B. TDMA standards have not yet been fully ratified and consequently, there is a lack of available products, specifically subscribers, which comply with the standard.**

The Project 25 Phase 2 TDMA TIA-102 Core definition documents have been published. Some work still remains however, to complete the suite of testing and compliance documents which are vital to verify system implementation. While it appears these compliance documents may be complete by 2012, beginning the financial planning process for an upgrade with unfinished standards can be problematic from the perspective of stake holder's. The degree of difficulty for system planners seeking the financial buy-in of key stakeholders not well versed in technical issues is thus raised. This air of uncertainty created by incomplete standards documents makes the high financial hurdle of the 2016 deadline even more difficult.

##### **C. Product life-cycles, costs and availability are such that agencies are significantly challenged to maintain their infrastructure and subscribers in sound, up to date working order.**

While current systems and subscribers are very advanced and well structured to meet the frequency efficiencies required by the FCC, these systems are very expensive. Significant investment is needed to implement such systems and maintain them up to date and compliant with the emerging standards. Manufacturers do not support these systems once they are more than 3 or 4 software versions out of date. In the present era, that translates to 2 to 4 years at the most. These systems are also very complex technically,

and while some agencies may be able to self-maintain their systems, for the most part, support from the manufacturer is an integral part of keeping the systems operating properly. Consequently, agencies must maintain software and hardware maintenance contracts with the manufacturers. These contracts typically do not include system transformations such as moving to the TDMA 2 channel equivalency.

Agencies routinely replace their subscribers every 5 to 7 years, but the current economic climate is forcing them to stretch the useful life of their equipment much longer. Further, due to the complexity of the current subscribers, they cost significantly more than these agencies previously deployed. The RWC, for example, is attempting to extend the useful life of subscriber units for 7 to 10 years. However, even this time-frame is proving to be financially unachievable.

The current narrow-banding mandate means that most of the agencies in Region 3, in addition to upgrading their infrastructure, must replace all of their subscriber units. This is proving to cost more than twice the amount necessary to simply upgrade the infrastructure.

Based on the above, the RWC has projected that it will cost approximately \$51 million to upgrade its infrastructure, and another \$103 million to replace its fleet of subscribers. Other RPC agencies are facing similar costs.

**D. Frequency management, including narrow-banding is best managed regionally by the local agencies to best fit the needs of their area.**

In lieu of the 2016 TDMA requirement date, the RWC and Region 3 RPC propose that the Region 3 RPC, which represents membership of all qualified applicants for 700 MHz channels, determine when an actual date to convert to TDMA 6.25 kHz channels is required. This will allow technology changes to take place as budgets allow and new equipment becomes available, and will also be based on regional need and coordination, not simply on an arbitrary fixed date. We feel this meets with the intent of Commission's actions by allowing Regional Planning Committees optimal flexibility to meet state and local needs. Since the Regional Planning Committees are closely in tune with local needs and actual channel usage, our view is that this proposal has merit and deserves consideration.

**E. TDMA conversion for systems using a combination of 700 MHz and 800 MHz require more changes than just to the 700 MHz capable equipment.**

Agencies which comprise the RWC have been planning for the FCC narrow-banding mandate. All equipment purchased for new 700 MHz portions of the system are narrow-band capable. However, while the TDMA and FDMA protocols may be mixed on a single system, they may not be used simultaneously on the same talk group thus limiting seamless roaming across the system. This inability to roam across the system, limits both direct operations and interoperability among users, and defeats the major premise of having a large regional system. In order to preserve the full capabilities of the



regional system, all FDMA components of the system must also be converted to TDMA. This, of course, adds to the cost of meeting the FCC's narrow-banding mandate.

## SUMMARY


All of these points and justification come together to support our request to waive or delay the narrow-banding mandate to December 31, 2020; or a yet to be determined date based upon certain criteria set forth by the Commission in concert with the Region 3 RPC, representing the State of Arizona.

This is a critical time in the short success story of the RWC. The signatories request swift review, decision and response from the FCC's Public Safety and Homeland Security Bureau. A positive decision to waive or extend the FCC 2017 deadline for narrow-banding 700 MHz will allow RWC system managers, budget analysts and policy makers, sufficient time to plan and fund those portions of the affected systems that require immediate, necessary upgrades or replacement.



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Regional Wireless Cooperative



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Mark Schroeder, Chairman  
Region 3, Regional Planning Committee